Lesson of the Week

Late diagnosis of frontal meningiomas presenting with psychiatric symptoms

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The frontal lobes of the brain are notoriously "silent": benign tumours such as meningiomas that compress the frontal lobes from the outside may not produce any symptoms other than progressive change of personality and intellect until they are large. Patients with such tumours are often referred first to psychiatrists, and the correct diagnosis may emerge only when the tumour has grown large and has begun to displace the brain.

When a fairly young person with no history of psychiatric disease develops a slowly progressive psychological change a frontal meningioma should be considered. Headache, papilloedema, and focal neurological signs may develop only when the tumour has reached an advanced stage

Case 1

A 37 year old man in good physical and mental health became progressively depressed and withdrawn for no clear reason. Although he showed no disturbance of appetite or sleep, he lacked energy and enthusiasm, and his wife had to take over the running of the household. He was referred to a psychiatrist and began group therapy. After a year he developed difficulties in reading and writing, his speech became hesitant, and he had some difficulty finding words. A few months after this his balance became unsteady and he stumbled occasionally. Although his wife believed that his illness was physical in nature, he continued to receive psychiatric treatment.

Four years after the symptoms started he woke one morning with a severe, persistent headache. He became drowsy, began vomiting, and was admitted as an emergency to a local hospital. Bilateral papilloedema was diagnosed, and he was referred to the neurosurgical unit, where he was also found to have an expressive dysphasia, a right faciobrachial weakness, and bilateral grasp reflexes. He had symmetrical hyperreflexia, a single extensor plantar response, and an unsteady gait. A computed tomogram showed a large, well defined left frontal tumour (fig 1). After the total removal of this tumour, which was a meningioma 9 cm in diameter arising from the side of the falx cerebri, he made a complete neurological recovery and returned to work, though he occasionally had epileptic seizures.

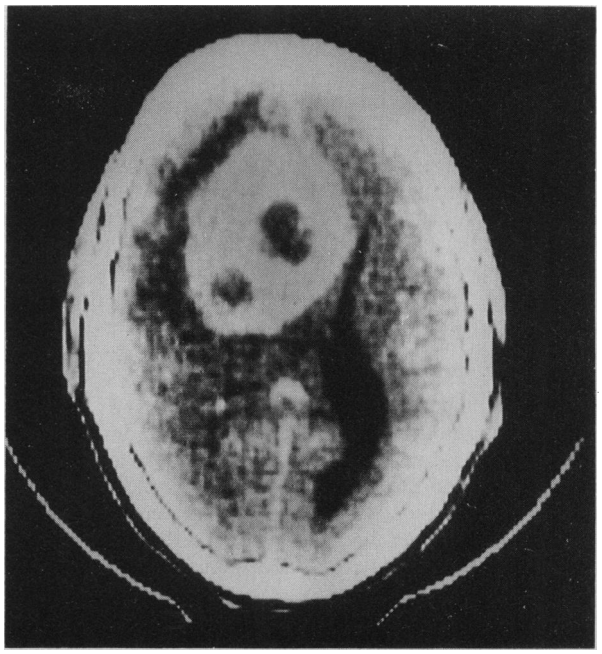

FIG 1—Computed tomogram after enhancement with intravenous contrast showing large well defined medial left frontal tumour.

Case 2

A 29 year old man with no history of ill health developed a slowly progressive apathy and loss of interest in his work and family. His relatives blamed the personality change on his wife, although there had been no marital disharmony, and these accusations led to considerable friction within the family.

A year after the first symptoms he began to complain of severe headaches and became lethargic. He also became incontinent of urine. Though his wife suspected some serious physical illness, four weeks after these symptoms developed he was referred to a psychiatrist and admitted to a psychiatric ward. Neurological examination was hindered by his irritability. His staggering gait and intermittent restlessness were thought to be functional. Seven days after he was admitted his conscious level deteriorated rapidly. His breathing became noisy, and when Cheyne-Stokes respiration started he was intubated and ventilated. Funduscopic examination showed severe chronic bilateral papilloedema, and neurosurgical help was sought. By the time he arrived at the neurosurgical unit he was brain dead. Computed tomography showed a large bifrontal meningioma with considerable oedema and compression of the adjacent brain (fig 2).

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Discussion

Intracranial tumours, notably frontal meningiomas, may present with psychological symptoms resembling depression, anxiety states, hypomania, and schizophrenia.[1-4] It is clearly impracticable

for a psychiatrist to subject every patient who presents with psychological problems to neuroradiological investigation. Nevertheless, there may be features present at an early stage that indicate serious organic disease.

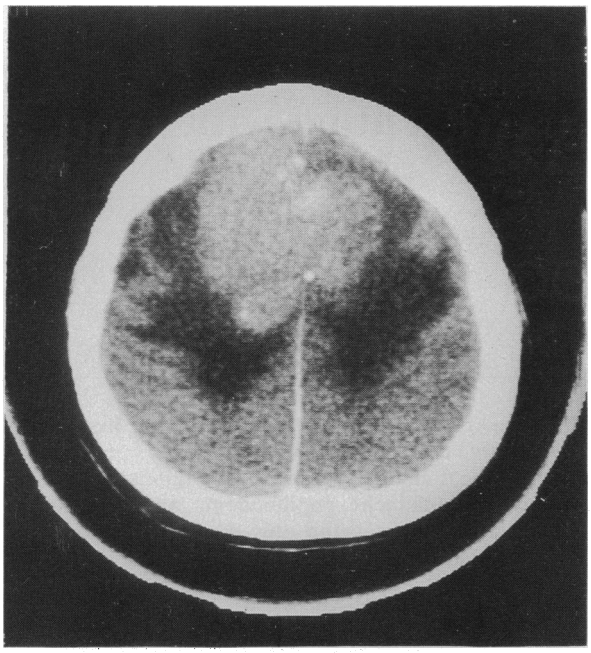

FIG 2—Computed tomogram after enhancement with intravenous contrast showing large bifrontal tumour with oedema of adjacent brain.

The onset of psychological symptoms is subtle and gradual, and once present the symptoms progress without remission. The patient may have led a well ordered life previously with no history of mental illness, and there may seem no clear reason why he or she should now develop a psychiatric disorder. Although there may seem to be conflicts within the family, these have usually resulted from the patient's initial symptoms rather than preceded them, as in case 2. The patient's family and friends may protest that the illness is physical rather than functional. It is wise to pay attention to such beliefs. In both our cases the families (but not the doctors) suspected a brain tumour; that their well founded suspicions were disregarded led to considerable bitterness.

The initial symptoms are usually attributed to depression, but close examination generally shows that the patient is not so much depressed as apathetic, careless, and indifferent. Although there may be changes of affect, these often take the form of irritability, fatuity, or euphoria rather than depression. As the lesion progresses the patient's memory may fail and personal appearance and professional duties be neglected.

Misdiagnosis is more likely to occur with a slow growing benign frontal tumour that compresses the brain from the outside, such as a meningioma, than with malignant tumours of the brain substance, which cause an explosive progression of symptoms over a matter of days or weeks. In patients with benign frontal tumours subtle changes of intellect and personality may evolve over months or even years. A meningioma that remained undiagnosed for 42 years has been reported,[1] and in one series of parasagittal meningioma 8% of patients had histories of more than 10 years, the longest being 37 years.[2] When the brain can no longer adapt to the presence of an abnormal mass it is shifted by further growth of the tumour and neurological deterioration may be rapid, as in case 2.

Lesions in the premotor regions of the frontal lobes may give rise to symptoms and signs other than personality change. Epileptic seizures are a clear indication of organic disease. Lesions in the left frontal lobe may result in a slight hesitancy of speech and difficulty in finding words before the development of frank dysphasia, as in case 1. Frontal tumours may produce incontinence of urine and faeces, to which the patient may be indifferent as part of his general self neglect, but at an earlier stage they may result in frequency and precipitancy of micturition (and less frequently of defecation), which may cause the patient concern. Sometimes the patient may present with urological symptoms and even undergo urological investigation before the correct diagnosis is made.[5] Although raised intracranial pressure can give rise to headaches that are worse on straining and in the morning, these usually develop late if at all.

Physical signs are often absent or minimal. The absence of papilloedema does not exclude an intracranial tumour. Tendon or plantar reflexes may not change until the tumour begins to affect the motor area, although grasp reflexes develop early in organic disease of the frontal lobes. Unilateral or bilateral anosmia may be the only sign of a subfrontal tumour.

Although meningiomas are usually benign and often curable, early diagnosis is important. Delay in diagnosis may mean prolonged distress for the patient's family as his or her personality disintegrates. Even if surgery leads to a complete "cure," the damage to the patient's personal work and relationships may be irreparable. Even with a benign tumour complete neurological recovery after surgery may not be possible if the tumour has grown to a considerable size. Removal of a frontal meningioma 8-10 cm in diameter is not easy, and injury to the brain may be unavoidable. Sometimes, as in case 2, the diagnosis may be made only when raised intracranial pressure has caused irreversible cerebral damage.

Cases such as ours emphasise the necessity for psychiatrists to have a good grounding in clinical neurology, especially those who intend to specialise in psychotherapy, who must remember that psychological symptoms may be a mode of presentation of physical disease of the brain. Psychiatrists must also realise that response of the psychological symptoms to treatment does not exclude an underlying physical cause. In a case previously reported obsessive agitated depression produced by a frontal meningioma was "cured" for many years by a leucotomy.[6] The psychological symptoms had been accompanied by focal epilepsy, which should have led to the correct diagnosis, but this was not made until 23 years after the leucotomy, when the seizures became more frequent and the patient developed symptoms of raised intracranial pressure.

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